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AUTHOR Wyman, Andrea
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ABSTRACT

In library instruction, as in any instructional setting, individual learning styles should be addressed to ensure better learning and retention. Historical examination of learning styles research suggests that in order to appreciate the diversity of students' learning styles and to apply this understanding in a library or information environment, instructors must first develop an awareness of learners' modes of reception and analysis of data, and their modes of concept formation and retention. This understanding can then be overlaid by Herman A. Witkin's (1977) model of field independence-dependence, which addresses not only the contrasting modes of information processing strategies, but the extent to which a person's perception of an item (or information) is influenced by the context in which it appears. Instructors must also recognize the nuances and idiosyncracies of their own learning styles. In conclusion, instructors are advised to: (1) be aware of their own cognitive styles; (2) be aware of the variations in students' cognitive styles; (3) permit flexibility where possible; (4) analyze the ways in which their style may bias their classroom teaching technique and presentation materials; and (5) ascertain if there are preferred styles and strategies necessary for the subject being taught and set up learning processes to help students with these strategies. Two tables list learning characteristics and suggested instructional practices for field dependent and field independent students. (24 references) (NRP)

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LEARNING STYLE: ITS PLACE IN LIBRARY INSTRUCTION

Andrea Wyman

March 1989

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LEARNING STYLE: ITS PLACE IN LIBRARY INSTRUCTION

Andrea Wyman
State University of New York-College at Oswego
Oswego, NY

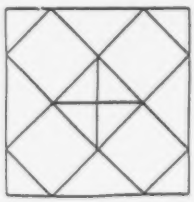
Abstract. Everyone has a learning style--a uniquely individual, yet finely tuned mode of perceiving and interpreting information. Sound instructional practice indicates better learning and retention occur when learning styles are addressed in any kind of instructional setting. In the many and varied learning environments of a library, applying learning style theory presents a number of challenges. As a beginning point, the construct of learning styles, like love, is dependent on the individual user for definition, experience and application.

Many questions are raised when examining learning styles in an information/instruction environment. Is it possible to define learning styles in an information environment? Are there identifiable characteristics of the field independent/field dependent learning styles in an information/instruction setting? Is it possible to identify teacher learning styles and show how they affect student learning? And what are the pragmatics of incorporating learning style theory into library instruction programs? The end result will be to present specific suggestions and instructional techniques for incorporating learning style theory into library instruction or information environments.

Keywords and Phrases. learning styles; library instruction; classroom application; cognitive style; teaching style

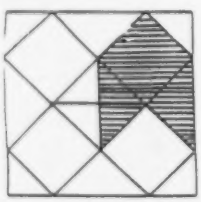
DEFINING TERMS

Everyone has a learning style,[1] a uniquely individual, yet finely tuned mode of perceiving and interpreting information. It is one's learning style that is the key to how a person functions in an instruction or information environment. As an example, what do you see when you look at this figure?



Your learning style helps you discern a box-shaped X or possibly a quilt-block pattern when looking at this diagram. From the viewpoint of cognition, it is learning style that helps you find the imbedded figure of this arrow

within the overall complex figure design.



The construct of learning style, like love, is a highly personal matter. The length, breadth and depth of one's experience with love and learning are dependent on myriad circumstances and situations. Interpreting learning styles in a library or information environment is a challenge and brings several questions to mind. First, what is the definition of learning style in a library or information environment? And second, what are the pragmatics of incorporating learning style information in library instruction.

Learning styles in education and information environments are characteristic cognitive, affective and psychological behaviors that serve as relatively stable indicators of how learners perceive, interact with, and respond to the learning environment.[2] Or as Hunt proposes in his 1978 article, "learning style is the educational condition under which a student is most likely to learn."[3] Examining learning styles in an information environment and suggesting possibilities for addressing learning styles in library instructional settings presents many challenges.

The history of learning styles and subsequent research is long and involved. Around 1900 psychologists in Germany were developing an interest in a number of different forms of "learning modes" or learning styles. The further research of Jung, Allport, Lowenfeld and Klein expanded the knowledge base on learning styles and identified styles or preferences for learning. Current studies have tended to look more at the outcomes of learning style and concentrate on personality, achievement and student-teacher interaction. In a recent publication entitled, Learning Styles: Implications for Improving Educational Practices, Charles Claxton and Patricia Murrell review the salient issues of learning styles as they relate to character traits, reasoning ability, classroom contact and teaching techniques.[4] Claxton and Murrell's review of the existing literature and their discussions of

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the major theories and models of learning styles are thorough and extensive.

The literature on learning styles generally divides the subject into three major components--cognitive, affective and psychological behaviors. In an information environment, one of the first major concerns lies with cognitive behaviors or cognitive style. Cognitive style is the information processing habits representing a learner's mode of perceiving, thinking, problem solving and remembering.[5] Cognitive style in a library instruction setting then becomes a matter of an individual's characteristic modes of perceptual and intellectual functioning, how an individual understands and categorizes individual variations in modes of perceiving, remembering and thinking. It is one's cognitive style that must utilize Library of Congress Subject Headings, boolean connectors, index formats, library-class lectures, point-of-use-guides and inductive or deductive approaches to search strategies.

LEARNING STYLES AND LIBRARY INSTRUCTION

How a learner's cognitive style melds with a library can be described as the way in which a patron perceives and interprets materials in an information environment. This "fit" with cognitive style in the library or information environment has been alluded to in a number of ways in library instruction literature although not labeled specifically as what-to-do-about-cognitive-learning-style-in-library-instruction.

As early as 1975, Elizabeth Frick addressed the importance of the ways in which students "conceive of information gathering in the context of library resources."[6] In her article, she postulates that a student's form of information gathering will have a bearing on the manner in which they actually find the material and eventually use it. Similarly, Pamela Kobelski and Mary Reichel specifically state that "learning is highly dependent on the cognitive structures available to the student."[7] They continue to posit the use of cognitive structures as a means of helping students harness the existing mental structures of what is to be learned. Reichel and Kobelski further suggest seven conceptual frameworks as a means of providing a necessary basis for learning in bibliographic instruction.

It is an article by Stoffle and Tuckett, however, that brings together the many threads of learning style and library instruction in "Learning Theory and the Self-Reliant Library User."[8] As they review and describe the varying pedagogical models, they strike a chord of learning or cognitive style with each model. For example, when they describe problem-solving skills as cited by Cerise Oberman with the guided design approach, learning styles of both the teacher and student are integral parts. In the guided-design approach, students work through a three-stage process or learning cycles: discovering new concepts, analyzing those concepts and finally applying them. This process allows for assimilation of the material at the level of the learner's style. Equally important is the emphasis with learning cycles for the instructor to promote open-ended problem-solving activities and small group instruction where the instructor can foster as much guidance as may be deemed necessary. In their concluding remarks, Stoffle and Tuckett state emphatically that "library-user education in which principles of learning theory are rigorously applied to instructional design appears to offer great potential for aiding instruction librarians in achieving the goal of developing self-reliant library users."[9]

When Jean Sheridan suggests that librarians begin to review their methods and styles in bibliographic instruction classes where adult learners are involved, she uses the literature to support her case. Her recommendation of an androgogical approach involves both the learner and teacher, for both teacher and student bring to class many years of instructional exposure. She sides with neither one, but leaves the responsibility of learning and teaching equally balanced and cites using learning styles and teaching styles as the cogent point of consideration for instruction. How, she queries, can instructors become acquainted with the ways of learning which will encourage self-direction and self-organization for the learner?[10]

Keeping these issues in mind, the question of how to incorporate learning style or cognitive style into library instruction must be raised. Several important strategies emerge from the available literature written on cognitive style learning as it relates to an information environment.

INCORPORATING LEARNING STYLES INTO LIBRARY INSTRUCTION

First and probably foremost is the importance of reception and analysis of data. How we view and understand data is critical in library settings. The first visual contact with data is often extremely important. One example of this at our library is to recall the number of patrons (though generally not students) that have walked into the lobby, looked beseechingly for the card catalog and when they realize they must use the online catalog, simply turn around and walk out the door. In this case, visual contact was the essence of information exchange failure.

The second factor--concept formation and retention--is concerned with hypothesis generation, problem solving and memory processing. These components are generally well-established characteristics of learners long before they enter a library setting. How often have we found ourselves explaining what an index is or does to a patron who we

thought surely would understand. And we find ourselves wondering as their blank look tells us they don't really seem to be understanding that a Readers' Guide Index and the Public Affairs Information Service do the same thing but with a bit of a different twist.

CHARACTERISTICS

Along with the strategies of cognitive style are the models of learning styles that relate specific ways in which people learn on a personal level. Many models exist in the current literature on learning styles. However, one model works well for an information environment. For cognitive learning styles involving reception and concept formation strategies the model researched by Herman Witkin referred to as field dependence-field independence is particularly appropriate.

In the early 1950's researcher Herman Witkin introduced his learning style theories on dimensions of cognitive style beginning with visual/perceptual studies.[1] He wanted to know how it was that people differentiated pieces of information, put them back together again as a whole and then used the information. His original visual/perceptual studies expanded and he extended the areas of his research to include personality, achievement and human relations components.

Witkin's field-independent-dependent model involves knowing to what extent a person's perception of an item--or in this case, information--is influenced by the context in which it appears. As an example, let's try to define the term "library".

How do you define a library? Take a few seconds to think about what it is that makes up the definition in your mind. Do you happen to think of a library as a storehouse of information? Or perhaps a building housing books, microfiche, indexes, archives?

Witkin's model of field independence-dependence transposed with the necessary components of cognition for reception and concept formation sheds a great deal of light on how learning occurs for individuals and what their particular style might be.

First let's define field dependence/field independence and then overlay reception and concept formation and finally apply this to your definition of a library.

Field independence-field dependence learning styles involve contrasting modes of information processing strategies.[12] On an information continuum, the two can be defined as a cognitive learning style where the:

* field dependent learner approaches information analytically, seeing things apart from the background material, tending to differentiate among learning experiences and approach problems both systematically and analytically;

* field independent learner approaches information in a non-analytic way and sees a more holistic pattern to the material and the integrating of all information parts.[13]

Let's go back for a minute to defining a library once again. When we analyze the beginning definitions of the term "library," the more global perception--the storehouse of information--surfaces as field dependent while the definition breaking the term into it's component parts of individual items constituting the whole, would be field independent.

Professor Witkin's theory carries with it a decidedly self-diagnostic flavor. At first glance it is often intriguing to consider the cognitive styles of those you know or even your own cognitive style. While formal assessment measures have been constructed by a number of different researchers, several informal checklists can be found in the learning styles literature.[14]

LEARNING STYLE CHARACTERISTICS

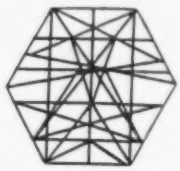
Field Dependent	Field Independent
perceives globally	perceives analytically
experiences in a global fashion adheres to structures as given	experiences in an articulated fashion, imposes structure of restrictions
makes broad general distinctions among concepts, sees relationships	makes specific concept distinctions, little overlap
social orientation	impersonal orientation
learns material with social content best	learns social material only as an intentional task
attends best to material relevant to own experience	interested in new concepts for own sake
requires externally defined goals and reinforcements	has self-defined goals and reinforcements
needs organization provided	has self-structured situations
more affected by criticism	less affected by criticism
uses spectator approach for concept attainment	uses hypothesis-testing approach to attain concepts

This checklist for characteristics of field independent/field dependent learners further delineates the differences in very basic terms. Of course, it goes without saying that all learners do not fall so conveniently into two basic categories. But out of curiosity, do any of you see yourselves as field independent or possibly field dependent? Or even a combination of both?

By adding different facets to Witkin's originally bipolar dimensions, it is possible to expand meanings of field independency and field dependency into other areas. Overlaying reception and concept formation further involves the learner and his or her particular style in the learning process. For example, the visual reception of information is an important factor when looking at the geometric figures originally displayed in the beginning of this talk.

The task of looking at this figure and discerning the imbedded figure of the arrow is distinctly different for the field independent/dependent learner.

Seeing the whole figure first, or the more global perception, is generally the case for the field dependent learner. Differentiating the isolated figure more rapidly is accomplished by the field independent learner.[15] This pattern and the differentiation of the imbedded figures shown below provides varying reception and concept formation tasks for learners and is used as part of a battery of assessment measures for establishing cognitive styles.



At first glance, it might appear that faster is better, however, the key to establishing one's field independent/dependent style lies not in the extreme of positioning one cognitive style over another, but in analyzing and understanding the means and the time taken to discern the figures and the complexity of the problems. The valuable question is <u>how</u> the learner has established the requisite solutions needed for information utilization and retention.

To suggest that only Witkin's two dimensions of learning style exist, is to offer a far too simplistic view of learning style research and theory. Under reception styles alone, a number of other models have been researched involving such varied aspects of reception as perceptual preferences (kinesthetic/psychomotor; visual/spatial; auditory/verbal), focusing or scanning, construction vs. flexibility or tolerance for the conventional vs. the unconventional. Concept formation and retention styles include a like number of factors such as tempo of learning, conceptualizing styles, breadth of categorizing, complexity, style and variations in memory processing.[16] All of these component parts support the multifaceted reasons which individualize learning style.

Add student motivation as a somewhat intangible but moving force in the instructional process and further characteristics showing the differences in field dependent/independent learners appear. Verbal praise, external rewards and providing outlines and structure are motivators for field dependent students. Grades, competition, personal goal charts and examples of a task's usefulness are motivators for field independent students.[14]

The routine approach to defining a student's learning style appears to have been done by learning style inventories. A number of formal and informal assessment measures exist, and student checklists are often used as one means of assessing learning style. For those library classes lasting a semester where there is frequent contact, the more formal learning style assessment measures might be possible and valuable.

Admittedly though, it would be an impossible and an unlikely situation to administer learning style inventories or assessments for each student involved in brief library instruction sessions. Furthermore, teaching to each individual learning style is simply not possible in the kinds of limited-contact, one-session formats many library instruction classes must take. The question then becomes one of what might be done to accommodate for cognitive style in the library classroom setting since sound educational practice indicates better learning and retention occur when learning style is addressed.

CLASSROOM APPLICATION

I would like to suggest that accommodating for learning styles in a library instruction setting should begin with the instructors. To accomplish this, it is necessary for library instruction programs and instructors to stress the importance of acknowledging learning styles as a valid component of learning theory for any library instruction situation. A basic knowledge of the existence and instructional importance of learning styles would be helpful for all library instruction. Accommodating for individual learning styles in any type of teaching setting will be accomplished first by establishing an awareness of the diversity of learning styles.

Research in the area of library instruction and learning styles appears to be an aptly-matched area of study offering a great deal of potential for library instruction. Creating an awareness of learning styles for instructors in the library instruction classroom is an essential first step. Helping instructors assess and examine their own cognitive styles is an equally important first part of this step. Earlier this spring, I mailed over 100 questionnaires to a random sample of librarians currently teaching in instruction programs across the United States, asking them to talk about their teaching, what approaches they liked most, liked the least and whether they were familiar with any of the materials or literature on learning styles theory. The return information may shed more light on teaching and approaches of learning styles currently happening in academic libraries.

The ways in which teachers relate to students, classrooms and materials are of great importance in any instructional setting. The literature tells us that "students left to their own devices will do what comes easiest for them--which is to use their own learning style.[18] This leaning

back approach, however, tends not to enhance any of the other skills the student might need to develop and also allows the teacher an easy route. Awareness of cognitive styles, again, seems to be the answer for both student and teacher. Hyman and Rosoff[19] take this one step further and suggest keeping three elements in mind: the teacher, the student and the subject matter which interrelate in an environment and in a particular time period. They point out that when teaching is going on, there are actually five elements present; teacher, student, subject matter, environment and time. They recommend that teachers recognize the constantly changing nature of teaching itself. This is to say that the material taught is not static but rather very dynamic. Add to this the changing nature of information and the changing nature of the student.

Libraries are now filled with new information access points, complex equipment, and students of different cultural backgrounds, ages and abilities. As instructors out there in the day-to-day routine, I am sure you are aware of this constant flux of student, information source and material. Many times, in the last year, I felt "out-technologied" and sometimes overwhelmed. As I prepared for new classes, I experienced all of these things until I slowed myself down and looked at how it was that I learned these new systems and the information I needed to know to teach them. It was the awareness of my own learning style as an instructor that afforded me a solid information and instructional base and provided support for dealing with changes in students and information sources and what I knew I needed to teach.

Just as you may have been able to discern a few of the characteristics about your own learning style from the checklists and imbedded figure diagrams presented during this talk, further research into the field of learning styles has yielded distinct variations in teaching styles. These can be seen from the following examples of observed teacher behaviors in classrooms and approaches to instruction.[20]

Instructors perceive and make sense of the learning environment and their own effect on the instruction through their own cognitive style. Mary Jane Even, in an article on adapting cognitive style into applied classroom situations, suggests additional examples of observed instructional practices.[21]

Along with the examples from the checklist, she suggests a number of points to keep in mind when preparing for an instructional session. I have added suggestions to her original list and feel these five points can easily be adapted for library instruction classrooms.

1. As an instructor, maintain an awareness of your own cognitive style. Are you field independent/dependent or possibly another one of the many other styles? If the literature on learning styles is unfamiliar, explore materials written by Rita Dunn, one of the leading researchers on learning styles. She has written many helpful articles and books on the subject, geared for practical classroom use. Researchers in the field of educational psychology such as Witkin, Gregorc and Garger have written clear and useful articles on the subject. The entire Winter, 1984 issue of Theory Into Practice offers a collection of eleven articles on learning styles from the perspectives of eighteen different author/educators. Try reading these materials and then move to articles discussing library instruction. The groundwork of incorporating learning style into library and information environments is there with Reichel, Kobelski, Oberman, Stoffle and Tuckett and Sheridan.

2. Be aware of the different variations of cognitive styles of students in a classroom--the fact that no two people learn in the same manner is not and should not be a new phenomenon to instructors. Even the diversity of learning styles within our particular group was discovered today. Accommodating for variations in learning styles may involve changes in the ways materials are presented or format styles used. Where a series of handouts have been the traditional means of information dissemination, other approaches to material presentation may be needed. However, a word of caution may be due here. Incorporating learning styles instruction into your teaching does not mean completely revamping a teaching style. Accommodating for variations in style may simply come about through changes in information presentation. And above all, classroom learning objectives and goals will remain the same.

EXAMPLES OF INSTRUCTIONAL PRACTICES

Students	Field Dependent	Field Independent
Techniques		
work alone	__can't do well	__prefer it
lecture only	__not good	__very good
film	__good	__ok but not needed
discussion	__greatly needed	__prefer not
small group tasks	__greatly needed	__can't stand
use of outline/story	__a must	__only outline needed
questioning/discussion	__does not handle well	can structure ideas __and answer quickly
Teacher Characteristics		
personal warmth	__need	__do not care
caring/friendly	__need	__do not care
supportive behavior	__need	__do not care
all business approach	__scares them	__prefer it
formal, organized/ logical assertive	__a must	__prefer it
handouts/outline	__a must	__prefer it

3. Permit flexibility where possible for students. As an example, offer options such as small-group, work sessions or opportunity for discussion during a class period. This variety of approaches to the same materials provides an opportunity for a number of learning styles to be accommodated.

4. Analyze the ways in which your style may bias your classroom teaching technique and presentation of materials. While a standard lecture approach (that of the field independent instructor) may have been historically the traditional information delivery means, it may only reach a handful of those field independent students in a class. Varying an instructional session with part lecture or part demonstration might reach more of a variety of learning styles.

And finally,

5. ascertain if there are preferred styles and strategies necessary for the subject you teach and set up learning processes to help students with these strategies. Going back to basic field independent and field dependent examples, this is visually apparent when teaching the use of periodical indexes.

Formats of indexes can vary greatly, however, looking at a basic format such as the Readers' Guide, I would like to suggest that standard citations in the example below take on the following characteristics when viewed by the two, very different field dependent and field independent learners.

Salient bits of data jump out for the field independent learner. Numbers, figures, tidbits of trivia fairly leap off the page. For the field dependent learner, the whole page is of importance, something to be savored, the facts slowly emerging from the whole after the entire visual field has been scanned. But for both, the seminal information on the citations, about South Korean Commerce are the end result of information retrieval.

Information format is a visually significant example of why the process of decipher-

KOREA (REPUBLIC) *See* Korea (South)
KOREA (SOUTH)
See also
Americans—Korea (South)
Child welfare—Korea (South)
Dams—Korea (South)
Seoul (Korea)
Student protests, demonstrations, etc.—Korea (South)
Commerce
Western Europe
Korea drives its export machine into Europe. T. Peterson. il *Business Week* p55-6 Ja 11 '88
Economic policy
Korea's Roh: man on a tightrope. L. Nakarmi. il *Business Week* p54 Mr 14 '88
Foreign relations
Korea (North)
'I should die a hundred deaths' [Kim Hyun Lee confesses to bombing Korean Air Flight 858] il por *Newsweek* 111:36 Ja 25 '88
The North Koreans set a record for big dam foolishness. D. Droge. *Conservative Digest* 14:53+ F '88

FIELD INDEPENDENT

KOREA (REPUBLIC)
KOREA (SOUTH)
Commerce
Western Europe
Korea drives its export machine into Europe. T. Peterson. *Business Week* p55-6 Ja 11 '88
Economic policy
Korea's Roh: man on a tightrope. L. Nakarmi. il *Business Week* p54 Mr 14 '88

FIELD DEPENDENT

See Korea (South)—Foreign relations—Korea (North)
KOREA (REPUBLIC) See Korea (South)
KOREA (SOUTH)
KOREA (REPUBLIC) See Korea (South)
KOREA (SOUTH)
See also
Americans—Korea (South)
Child welfare—Korea (South)
Dams—Korea (South)
Seoul (Korea)
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The North Koreans set a record for big dam foolishness. D. Droge. Conservative Digest 14:53+ F '88
Industries
See also
Jinro Industries Ltd.
government
Elections—Korea (South)
The quarrelsome Koreans. I. Buruma. il pors The New York Times Magazine p42-3+ Mr 27 '88

ing citations for some individuals may go smoothly or provide a very rocky experience for others. Offering two options visually is only one way to meet the learning needs of both learning styles during the course of an information/instructional session. Along with the two visual formats, offer discussion of the citation information, deciphering techniques and questioning opportunities.

It appears that teaching style ultimately governs the learning situation in a classroom both from the ease of information assimilation on the part of the learner and from an instruction viewpoint for the teacher. Valuing the uniqueness of a teacher's teaching style and the learner's cognitive style is always needed. Fortunately the research on learning styles is continuing. This awareness is seen in the latest research on learning styles which involves assessing both teacher and student learning styles and then computer matching teachers with students by styles.[22]

CONCLUSION

Information on learning styles has come about through research carried out over the last forty years and by evaluating the learning styles of many thousands of students and instructors. Herman Witkin in a paper entitled "Cognitive Styles in the Educational Setting" sums up the main importance of introducing learning style awareness when he states, "At the heart of a cognitive-style approach is an emphasis on the recognition and use of diversity among individuals.[23] In other words, everyone has a learning style and the value of the learner lies in the individuality of her or his learning style.

Witkin also goes on to emphasize the point that the value of one learning style intellectually outshining another style should carry little concern. The valuing of a person's learning style, he insists, is the essence of the theory. Although Witkin's research indicates that cognitive styles are independent of intelligence, the very idea of one's style for learning or for teaching holds relevance only in HOW the learning takes place rather than HOW MUCH.[24]

By using this particular talk as an example of information presentation, I had hoped to begin to piece together the research on learning and cognitive styles with that of library instruction and to incorporate formats readily assimilated by both field dependent and field independent learners.

But the responsibility of whether or not I was able to enlighten you and myself and still address the learning style diversity of this particular audience hangs very heavily over my shoulders. I found out that the suggestions by Mary Jane Even were helpful but that my own teaching style needed occasional harnessing. I knew I should acquaint you with learning styles in a number of ways--visually with figures and charts, engaging you as learners with questions, analytically and nonanalytically through varying formats and with flexibility, which I hope will come through the discussion period at the end of the presentation. While I was aware of what I should be doing instructionally to accommodate the various learning styles of this group, I truly had to change a few of my original ideas and customary approaches. I learned first to concentrate on practicing what I was preaching! But in the end, I found the overall teaching experience very rewarding for I felt I had worked on the material involved in getting this presentation together in a much more eclectic manner and had avoided a few of my usual, tunnel-vision approaches. In the process of teaching to varying learning styles, I knew I had learned and increased my own awareness of the information on learning styles and of my own teaching/learning style tenfold.

As you go out to face your next group of students or individuals in a library's instructional setting, I challenge you to be aware that everyone has a learning style in an information environment. Take learning style into consideration as a viable construct in the library or information environment as it involves cognitive behaviors or learners while they perceive, interact with and respond to an information environment. Consider the nuances and idiosyncrasies of your own learning style and try to assess how your own learning style impacts on your methods of instruction. As instructors you will be stretched and your teaching improved as you provide students with learning opportunities in an information environment that will complement or maximize their learning style. For in the end, the yield of learning will be for two, that of student and instructor, rather than just one.

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